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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,413	07/30/2001	John Robert Siddle	1-15467	2002

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EXAMINER	
VERSTEEG, STEVEN H	
ART UNIT	PAPER NUMBER
1753	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

A37

Office Action Summary	Application No. 09/890,413	Applicant(s) SIDDLE, JOHN ROBERT	
	Examiner Steven H VerSteeg	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-18 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-18 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-13, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,837,361 to Glaser et al. (Glaser) in view of US 6,010,614 to Keskar et al. (Keskar).

3. For claim 1, Applicant requires a process for the production of a coated substrate comprising depositing a reflective metal layer on a substrate by a low pressure deposition process performed in a coating atmosphere. The coating atmosphere contains a gaseous oxygen scavenger that is not hydrogen.

4. For claim 11, Applicant requires the reflective metal layer to be silver. For claim 17, Applicant requires the deposition process to be sputtering.

5. Glaser discloses a multilayer stack produced by sputtering comprising bismuth oxide with silver deposited thereon over a glass substrate (Example Embodiment 1). Glaser utilizes hydrogen in the atmosphere.

6. Glaser does not disclose the use of an oxygen scavenger gas that does not contain hydrogen.

7. Keskar discloses that hydrogen and methane are interchangeable oxygen scavenger gases (col. 2, l. 33-39).

8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Glaser to utilize methane rather than hydrogen because of the knowledge that hydrogen and methane are interchangeable oxygen scavenger gases that produce equivalent results.

9. For claim 3, Applicant requires the gas to be capable of combining with more than one oxygen atom. As an example of such a gas, Applicant has utilized methane in their specification. Therefore, when Glaser is modified by Keskar and uses methane, the limitation of claim 3 is met.

10. For claim 4, Applicant requires the oxygen scavenger to be a hydrocarbon. For claim 5, Applicant requires the hydrocarbon to be a C_1 to C_4 hydrocarbon. For claim 6, Applicant requires the hydrocarbon to be methane. As noted above, it would have been obvious to utilize methane rather than hydrogen in Glaser.

11. For claim 7, Applicant requires sufficient scavenger to alleviate oxidation and/or degradation of the reflective metal layer. The silver layer is not oxidized in Glaser (col. 6, l. 4-13). Therefore, sufficient scavenger must be added.

12. For claim 8, Applicant requires the amount of scavenger to be in an amount that exceeds 15 mol% of the amount of oxygen. For claim 9, Applicant requires the amount of scavenger to be in an amount that exceeds 30 mol% of the amount of oxygen. For claim 10, Applicant requires the amount of scavenger to be in an amount that exceeds 50 mol% of the amount of oxygen. Glaser sputters in an atmosphere of argon with 5% oxygen scavenging gas (Example Embodiment 1). Therefore, Glaser uses the oxygen scavenger in an amount of more than 50 mol% of the amount of oxygen.

13. For claim 12, Applicant requires the reflective metal layer to have a thickness of 5-30 nm. For claim 13, Applicant requires the thickness to be 7-18 nm. Glaser discloses that the thickness of the silver layer is 12 nm (col. 5, l. 48-54).

14. For claim 18, Applicant requires depositing a metal oxide antireflective layer before depositing the reflective metal layer. As shown in Example Embodiment 1, Glaser discloses depositing a metal oxide layer below the silver layer.

15. For claim 20, Applicant requires the substrate to be curved. Glaser discloses that the coated substrates are to be used as windows for automobiles (col. 1, l. 15-21), and car windows are curved.

16. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,837,361 to Glaser et al. (Glaser) in view of US 6,010,614 to Keskar et al. (Keskar) as applied to claim 1 above, and further in view of US 6,398,925 B1 to Arbab et al. (Arbab).

17. For claim 14, Applicant requires the sheet resistance to be below 12 Ω/square. For claim 15, Applicant requires the resistance to be below 12 Ω/square with a measurable amount of oxygen. For claim 16, Applicant requires the resistance to be below 8 Ω/square.

18. Glaser in view of Keskar is described above but does not disclose the sheet resistance. Glaser does, however, indicate that the emissivity is low in the resulting product (Example Embodiment 1) such as 0.003.

19. Arbab discloses that low emissivity in glass substrates coated with silver over a metal oxide layer have sheet resistances that are well below 8 Ω/square when the emissivity is below 0.065 (Table 2). Because Glaser has emissivity below 0.065, it is obvious that the sheet resistance would be below 8 Ω/square.

Double Patenting

20. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

21. Claims 1, 4-6, and 11-17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5, 8, and 11 of U.S. Patent No. 6,540,884 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are completely disclosed in the patent claims. The claims correspond as follows: the limitations of claims 1, 4-6, and 17 are found in claim 1 of the patent; the limitations of claim 11 is found in claim 5 of the patent; the limitations of claims 12 and 13 are found in claim 11 of the patent; and the limitations of claims 14-16 are found in claim 8 of the patent.

22. For claim 1, Applicant requires a process for the production of a coated substrate comprising depositing a reflective metal layer on a substrate by a low pressure deposition process performed in a coating atmosphere. The coating atmosphere contains a gaseous oxygen scavenger that is not hydrogen. For claim 4, Applicant requires the oxygen scavenger to be a hydrocarbon. For claim 5, Applicant requires the hydrocarbon to be a C_1 to C_4 hydrocarbon. For

claim 6, Applicant requires the hydrocarbon to be methane. For claim 17, Applicant requires the deposition process to be sputtering.

23. The patent claims a process for producing a coated substrate comprising depositing a reflective metal layer on a substrate by sputtering using methane as an oxygen scavenger (claim 1).

24. For claim 11, Applicant requires the reflective metal layer to be silver. The patent claims the reflective metal layer to be silver (claim 5).

25. For claim 12, Applicant requires the reflective metal layer to have a thickness of 5-30 nm. For claim 13, Applicant requires the thickness to be 7-18 nm. The patent claims the thickness to be 8-18 nm (claim 11).

26. For claim 14, Applicant requires the sheet resistance to be below 12 Ω/square. For claim 15, Applicant requires the resistance to be below 12 Ω/square with a measurable amount of oxygen. For claim 16, Applicant requires the resistance to be below 8 Ω/square. The patent claims the sheet resistance to be less than 12 Ω/square (claim 8). Being below 8 Ω/square would have been obvious.

Response to Amendment

27. The claim objections presented in the office action mailed October 11, 2002 are withdrawn in light of the amendment.

28. The 112-second paragraph rejections presented in the office action mailed October 11, 2002 are withdrawn in light of the amendment.

29. The 103(a) rejection of claims 1, 3-13, 17, 18, and 20 over US 5,837,361 to Glaser et al. (Glaser) in view of US 6,010,614 to Keskar et al. (Keskar) presented in the office action mailed October 11, 2002 stands.

30. The 103(a) rejection of claims 14-16 over US 5,837,361 to Glaser et al. (Glaser) in view of US 6,010,614 to Keskar et al. (Keskar) as applied to claim 1 above, and further in view of US 6,398,925 B1 to Arbab et al. (Arbab) presented in the office action mailed October 11, 2002 stands.

Response to Arguments

31. Applicant's arguments filed April 11, 2003 have been fully considered but they are not persuasive.

32. Applicant has argued that Glazer does not disclose or suggest the use of an oxygen scavenger. The examiner disagrees. Glazer uses hydrogen in Example 1. While it is not necessarily stated that it is an oxygen scavenger, the fact remains that it is an oxygen scavenger no matter why Glazer introduced it to the system. Glazer may not necessarily state that an oxygen scavenger is present, but one is.

33. Applicant then argues that Keskar is directed to a different oxygen scavenger than that type used in the instant invention. It is unclear how they are different. Kesker introduces an

oxygen scavenger that reduces the partial pressure of oxygen on the anode side by scavenging the oxygen. It is unclear how that is different than what Applicant's scavenger is doing.

34. Applicant then notes that Glazer incidentally discloses a process for depositing a reflective metal layer by a low pressure deposition process in the presence of an oxygen scavenger. Applicant seems to be implying that because it is only incidentally mentioned that is cannot be considered. That would be incorrect. The fact is, as Applicant has admitted, Glazer discloses a process for depositing a reflective metal layer by sputtering in the presence of an oxygen scavenger. Glazer is identical to that claimed by Applicant in claim 1 except that Glazer uses an oxygen scavenger that is hydrogen.

35. Applicant then argues that Keskar is directed to a different process. Keskar may be directed to a different process, but the art is analogous. The analogous art is oxygen scavenger gases. Keskar teaches that hydrogen and methane are interchangeable oxygen scavenger gases. Thus, there is in fact motivation to combine the references.

36. Applicant then argues that the pressures of Keskar are different than that used by Applicant. Applicant has made no claim to pressure in any of the claims.

37. Applicant and the examiner appear to be in agreement that the teachings of Arbab are obvious and that if Glazer in view of Keskar is obvious, then further modification with Arbab would also be obvious.

General Information

For general status inquiries on applications not having received a first action on the merits, please contact the Technology Center 1700 receptionist at (703) 308-0661.

For inquiries involving Recovery of lost papers & cases, sending out missing papers, resetting shortened statutory periods, or for restarting the shortened statutory period for response, please contact Palestine Jenkins at (703) 308-3521.

For general inquiries such as fees, hours of operation, and employee location, please contact the Technology Center 1700 receptionist at (703) 308-0661.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (703) 305-4473. The examiner can normally be reached on Mon - Thurs (7:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven H VerSteeg
Primary Examiner
Art Unit 1753

shv
May 7, 2003